# WAGE GRADE CAREER PATH

| WG 2604 | Electronics Mechanic |
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This occupation covers nonsupervisory jobs involved in fabricating, overhauling, modifying, installing, troubleshooting, repairing, and maintaining ground, airborne, and marine electronic equipment, such as: radio; radar; sonar; cryptographic; satellite; microwave; micro computers and peripherals; laser; infrared; industrial x-ray; marine, aeronautical, and space navigation aid; TV receiver; surveillance; and similar devices. The work requires knowledge of electronic principles; the ability to recognize improper operation, locate the cause, and determine the best method to correct the defect; and the skill to disassemble, assemble, and adjust electronic equipment. The work includes using both manual and automated test equipment. The work may require the use of a personal computer and numerous software packages to program or realign various components or systems, download information, and detect equipment deficiencies

| | Step | |
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| WG02 - WG05 | | **Part 1**<br>**Apprentice/Helper/Trainee; Trade/Less than Journeyman** |
| | 1 | Complete New Hire Orientation |
| | 2 | Complete Civilian Training Plan requirements for current position |
| | 3 | Complete task qualifications for current position |
| | 4 | Complete task certifications for current position |
| | 5 | Master simple to common work tasks under supervision |
| | 6 | Maintain successful to above average performance ratings |
| WG05 - WG08 | | **Part 2**<br>**Trade/Less than Journeyman** |
| | 1 | Continue required on-the-job and formal classroom training required in Civilian Training Plan |
| | 2 | Complete task qualifications for current position |
| | 3 | Complete task certifications for current position |
| | 4 | Master common to complex work tasks. Grade 8 electronics workers have a practical knowledge of electrical and electronic theory. They know how to locate and repair malfunctions and test completed work. They apply knowledge of construction practices of electronic equipment in order to recognize types and sizes of resistors, capacitors, wiring, and transistors; and follow signal paths through simple printed circuit and wired circuitry, recognizing actual circuit configurations which are shown in schematics and diagrams. They apply knowledge of standard test procedures, schematics, test/computer program instructions, technical manuals and technical change directives to complete assignments. They are skilled in the operation and applications of computerized automatic test equipment; oscilloscopes, signal/pulse generators, frequency counters, and voltmeters to follow specified check-out procedures and compare readings with specified values. They have skill in the use of hand tools such as drills, chassis punches, wrenches, soldering irons and micro soldering units to remove and replace circuit parts where accurate positioning, appearance, mechanical strength and electrical integrity are important. |
| | 5 | Maintain successful to above average performance ratings |
| | | **Part 3**<br>**Journeyman** |
| | 1 | Continue required on-the-job and formal classroom training required in Civilian Training Plan |
| | 2 | Complete task qualifications for current position |
| | 3 | Complete task certifications for current position |
| | 4 | Master common to complex work tasks. Grade 10 electronics mechanics apply a thorough knowledge of operating electronic principles such as microminiaturized digital and solid state integrated circuits, transistors, diodes, tube circuits, antennas, signal transmission, oscillation, and amplification. They apply this knowledge to troubleshoot and repair malfunctions where circuit theory must be used to understand the operation, not only of individual circuits but also the interaction of other circuits to create a malfunction. They evaluate and perform functional tests on items to determine the extent of repair required, make repairs, and replace defective components and parts. Electronics mechanics at this level have skill in interpreting and applying a variety of technical information such as technical orders, manufacturers' handbooks and repair manuals, schematics, block diagrams, mathematical expressions, and similar documents while testing and repairing functionally independent electronic equipment. They have skill in the use of electronic test equipment such as oscilloscopes, pulse and signal generators, distortion and waveform analyzers, digital data generators, digital voltmeters, frequency and pulse generators, and special test panels. They have skill in the use of a variety of hand tools such as screwdrivers, drills, wrenches, and soldering irons and in the use of microsoldering techniques.<br><br>Grade 10 electronics mechanics have skill in the set-up and operation of computer controlled automatic test equipment to test and troubleshoot various components and assemblies of electronic equipment or printed circuit boards. Electronics mechanics at this level must be able to assist engineering personnel in developing, debugging, or modifying diagnostic programs by recommending changes where necessary and identifying and investigating apparent contradictions between test specifications or test requirement documents and test programs. |
| | 5 | Master common to complex work tasks including: Grade 11 electronics mechanics apply a comprehensive knowledge of operating electronic principles such as circuit elements, digital logic, microprocessors, core memory, interface circuits, digital data transmission, microwave, antennas, signal behavior, amplification, and display. They apply this knowledge to troubleshoot, install, repair and maintain malfunctions in complex electronic systems where circuit theory must be used to understand the operation of individual circuits, and the possible interaction of other circuits which create a malfunction. Electronics mechanics at this level may apply an extensive knowledge of electromechanical servo systems, pneumatics, hydraulics, and mechanical and electric motor systems for antenna control. They may have extensive knowledge of cryptographic equipment and security COMSEC procedures.<br><br>Electronics mechanics at this level have skill in interpreting complex drawings, specifications, and schematics of complete systems to recognize the function and interconnections of the various assemblies and troubleshoot the system from the schematic, following signal paths through a complex path of interconnections of components, assemblies, subassemblies, and connecting cable harnesses. They have skill to modify systems by adding, altering, or removing components in order to standardize or alter the purpose of the equipment or to incorporate new features developed since the equipment was manufactured. |

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| | 6 | Master common to complex work tasks including: Grade 12 electronics mechanics apply an expert knowledge of operation, capabilities and limitations of electronic equipment and systems. They have skill in applying this knowledge to understand new systems or complex systems that have frequent engineering changes to improvise alignment, repair, and operating procedures which will be efficient, complete, and compatible with available resources. Mechanics at this level have a practical knowledge of electronic theory and design. They are able to use theoretical concepts to devise solutions for operating or repair problems on systems in which novel engineering approaches have created unforeseen problems. They have skill to interpret electronics drawings, specifications, and schematics of complex operational systems such as a new data transmission system with analog-to-digital converters, pulse generators, multiplexers, timing circuits, microwave transmitters and receivers, and similar involved subunits which create and use many interlocking signals. They have skill in troubleshooting complex electronic systems that lack documentation and to assist engineers in the development of technical orders using reverse engineering procedures. In some work situations, they may be required to interact with engineers, manufacturer's representatives, engineering personnel and field unit personnel in troubleshooting and developing modifications, substitutions or, corrections to equipment to reduce breakdowns and/or simplify repairs, servicing or operation. They apply a full knowledge of complex automated test equipment (ATE), the unit under test (UUT), and the related computer programs in order to recognize deficiencies in the ATE, programming, or UUT. If malfunction is determined to be in the ATE assemblies or UUT, they isolate same to a specific part and perform the necessary repairs and retest. If malfunction is in the test program, they serve as subject matter experts in providing technical assistance to engineering personnel in resolving the problem. Additionally, they are often requested to conduct formal training regarding the proper use of a component or system, and continually provide advice and assistance to users |
| | 7 | Provide production support services |
| | 8 | Maintain successful to above average performance ratings |

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